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ABSTRACT

Accepting the image of computer technology as incompatible with women reinforces the long history of women's disassociation from technology. In terms of both literacy and computer technology, women's stories are not being told. How female re-entry students in a two-year college experience computer literacy and technology and what their expectations are concerning literacy and computer literacy are examined through case studies of three women in their first semesters at a technical college in Wisconsin. Data came from interviews and conferences with the subjects, oral narratives they constructed, observations, and documents (including writing samples). The experiences of the three participants indicated that there was a relationship between the accepted institutional literacy discourse and computer literacy. The literacies stressed by the college were also shown in the types of computer literacy emphasized, but the subjects were ambiguous about these literacies and saw them as very separate from the rest of their lives. These women perceived a necessity to be computer literate, but had no very clear idea of what constituted computer literacy, although they seemed to define it as literacy on functional or occupational levels. They usually saw themselves as less skilled than they actually were. (Contains 37 references.) (SLD)

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Literacy Connection: A Study of Women and Computer Technology in a Two-Year College

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American Educational Research Association Annual Meeting
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Introduction

Literacy and computer literacy have become inextricably bound. It is clear that people read books and write with pens today just as they did yesterday and will do tomorrow; however, it is also clear that technology is rapidly changing the proportion of literacy activities carried on outside the technology of computer-mediated environments. Ideally, literacy is a way of knowing as well as what is known; it is an ability to use words, to understand words, and to think in and with words. But, literacy is also a culturally and politically defined concept. By default, those who do not fit an accepted and dominant culture literacy are defined as illiterate.

Women's literacy and computer literacy are particularly problematic. Although other contextual factors such as class, socioeconomic development, linguistic affiliation, and marginalization of particular ethnic groups influence the sorts of literacy women acquire, women consistently comprise the majority of those marked as illiterates (Stromquist, 1990). As Geiger says (1980), "the act of writing is class and culture-bound whenever it occurs" (p. 235); to that I would add that it is also gendered. In addition, there

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is a long history in United States education of placing women's literacy in the context of value to others rather than in relation to its value to the individual woman. Even now, women's needs for literacy are phrased often in terms of service to the state or society (see for example, Ramdas, 1990 and Rush et al., 1986).

The classed and gendered use of computer technology reflects a similar construction. Those applications of computer technology most closely tied to traditional female occupations require a computer literacy tied to routinized skills, such as the use of particular word processing or spreadsheet software. The emphasis is again on production that is of value to others. Wajcman (1991) points out that historically and currently, women are less involved in technology than men. In addition, Bentson (1988) notes that the technology women are involved with is non-valued technology like microwave ovens, vacuum cleaners, and washing machines rather than electron microscopes, or space shuttles, or even automobiles.

Kramarae (1988) argues that technology is not simply the machines, but encompasses social relations and communication systems. For these reasons, even though computer technology could have been constructed as neutral, or even female given that the first programmers were women and women have an historic association with keyboards, it became associated with math and science, traditional male enclaves. So, women avoid technology and computer technology. Turkle (1988) calls this avoidance not phobia, but reticence. Reticence is not fear of the technology, which Turkle argues, is a transitory phenomenon, but rather a desire to keep one's distance from the "intimate machine," a

machine that Turkle says women see as demanding involvement and attention, separating people from each other.

Accepting the image of computer technology as incompatible with women reinforces the long history of women's disassociation from technology. In terms of both literacy and computer technology, women's stories are not being told. Increasingly, men's stories are being told exploiting the power conferred by computer technology, so these stories are found in electronic form, on CD ROM or in data banks on the Internet, locations accessible only through computer technology. On the other hand, women's stories are mostly in print, not in electronic form. Dale Spender (1993) suggests that the very success of the women's presses has been because print is no longer the primary medium, so it is no longer worth defending print as a preserve for dominant culture information. As the world becomes more and more dependent on technology, this lack of participation with technology in general and computer technology specifically, is dangerous. It is dangerous because women then do not have influence on the creation and use of technology, and because their knowledge, their stories will not be available in what will become the dominant medium. So, it is not only important to listen to women's stories about literacy, but also to listen to their computer stories concerning literacy and the ways that the two are intertwined as we begin to understand how epistemological constructions of computer literacy are excluding women from owning the technology.

My research has been directed toward how re-entry women in a two-year college experience literacy and technology, and their expectations concerning what constitutes

literacy and computer literacy. With their help, I challenge the dominant culture construction of literacy and computer literacy, by exploring the following questions:

1. How do reentry women in a two-year college perceive themselves in relationship to the institutional literacy culture? How do reentry women experience using the computer to write?

2. How do computers fit into women's images of themselves and the worlds for which they think they are preparing?

3. What are these women's expectations concerning literacy and computer literacy? What are the consequences of these expectations and experiences for them?

Theoretical Framework

My work is grounded in a feminist approach, based on the assumption that gender is indeed a valid position (although, by no means the only position) from which to view the world. It is a position that "can be actively utilized (rather than transcended) as a location for the construction of meaning" (Alcoff, 1988, p. 434). There is no one mother theory of feminism and no one methodology for feminist research (see, for example, Klein, 1983; Harding, 1987; Cook and Fonow, 1990; Nielsen, 1990). Feminist scholars have been part of a movement away from traditional social science methodology (Nielsen, 1990). Ideas of what it is to do research and how research should be done have been transmuted by the contributions of postpositivist epistemology. Feminist methodology has grown from many of these traditions that question positivism, such as hermeneutics, critical theory, and

postmodernism, and has added significant new questions to the ones that they pose. It is "situated within established traditions even as it calls them into question" (Lather, 1992, p. 93). It is a methodology in the process of becoming (Cook and Fonow, 1990).

There are, however, some generally agreed upon principles underlying choice of research question, methods employed, and purpose among researchers using a feminist methodology: the research question must assume the validity of women's experiences (Klein, 1983), be of concern to researcher and participants (Reinharz, 1983), and must reflexively attend to gender (Cook and Fonow, 1990). In other words, the research question must grow and focus on women's experiences and needs. There are no exclusively feminist methods, but there are feminist techniques for employing research methods. These techniques proceed from the rejection of the separation of subject and object in research; they reject the myth of value-free objectivity, suggesting that it is neither possible nor desirable for the researcher to remove her own culture (Harding, 1987). Instead, they embrace a stance of conscious subjectivity (Klein, 1983), or conscious partiality (Mies, 1983), or intersubjectivity (Weskott, 1990) to structure methods used and interaction with research participants. In other words, awareness of, consciousness of one's own subjectivities, allows one to create a research environment that is based on collaborative dialogue (Reinharz, 1983), a dialectical process (Weskott, 1990) that insures the research is not based on spectator knowledge, viewing from above rather than from below (Mies, 1983), is not voyeurism or intellectual tourism (Roman and Apple, 1990).

Finally, the goal of feminist research must be research for women (Klein, 1983; Weskott, 1983; Nielsen, 1990), directed to empowerment of women (Cook and Fonow,

1990), and used to change the status quo (Mies, 1983). It should be a reflexive research of praxis (Lather, 1991) that helps "participants understand and change their situations" (p. 57) without imposing the researcher's theory on the participants.

In addition to those feminist tenets, critical and postmodernist theories offer two complementary concepts. Because of the pluralities in all of our lives, researcher and researched subject alike, it is useful to accept theory from a number of categories, to theorize from a broad base, to shed light on women in relationship to technology. So, I briefly summarize these ideas that are woven throughout this paper.

Critical theory reminds us of the struggle, a very real struggle, that unprivileged groups must wage for literal physical survival as well as for cultural and individual dignity. However, as Ellsworth (1989) points out, critical theory minimizes differences between different groups of unprivileged and seeks primarily to redefine the dominant culture to be more inclusive. Postmodernism, on the other hand, challenges the very idea that it is possible to redefine, suggesting that such construction is riddled with ideologies of the dominant culture, that the way to enlightenment is to deconstruct, to discover all the dominant culture building blocks in the construction, to realize there are no absolutes except the necessity to accept complexity. Postmodernism provides a beneficial dose of skepticism not only reminding us that there is no truth with a capital "T", but no single truth even with a lower case "t", and scoffs at the idea that truth even matters. But deconstructing is only negative, an epistemology of the shrug, which says that no reality can exist without a universalizing perspective, and since no one perspective is universal for all, to have a reality means to have a reality constructed by a group powerful enough to

enforce its perspective. Shrugging in the face of other's truths does not make them go away; it simply cocoons one in skepticism while the world continues based on the truths of those in power. Feminist postmodernists, such as Butler (1992) and Lather (1994) build on the skepticism of postmodernists, utilizing these principles to challenge dominant culture ideology, but exploring ways for multiple truths to converse.

One way to begin this conversation, to understand each other's truths, is to listen to each other's stories. My work presents the stories of 3 women within the context of their first semester at a technical college.

Methods and Data Source

My research is based on a series of case studies. I chose to examine the experiences of re-entry women in a technical college rather than a four-year college or university, because I believe that there is a need for this research, to shed some light on women in an educational system that has not been examined with women's needs in mind. The site is typical of Wisconsin technical colleges, and the women who participated in this study are typical of re-entry women enrolled in technical colleges in Wisconsin. They are also typical of women enrolled in community colleges in general. Wisconsin technical colleges share some similarities with other two-year colleges as well as having some significant differences. One difference is that the technical college system in Wisconsin is grounded in a vocational orientation, so that there is an even greater emphasis on job skills, and an even smaller place for liberal arts or humanities, for a knowledge that might challenge dominant culture discourse. Business and industry in the community, as well as

the technical college programs preparing students to enter these businesses and industries, have a strong bias toward a narrow definition of literacy and computer literacy, one focused on skill acquisition, even though the most recent literature on writing pedagogy and computer literacy stresses a definition encompassing more complex visions and stressing entry to a web of knowledge and communication. This narrow focus, in turn, results in pressure on the few general education courses to be applied, to be seen as "support" courses for specific programs. So outside and, to some extent, inside the Communication Skills Department, the writing class is seen as a course for improving correctness, not as an opportunity to explore ways of communicating.

I had four criteria for participant selection: 1) that participants had been out of school for at least five years, 2) that they be enrolled in diverse programs, 3) that they would be enrolling in spring semester in a section of a Written Communication course, 4) that there was a balance between those who had taken an introduction to computers course, and those who had not.

The first criterion was necessary since reentry women are defined in a multitude of ways. I used a cut-off of five years since last being enrolled in an educational institution, because in that time, women potentially have encountered ***real world*** experiences with literacy and computer technology. The second criterion seemed important as an attempt to have participants representing a broad slice of the college; however, it was impossible to meet this criterion as reentry women are overwhelming concentrated in female dominated occupations. The third criterion was crucial to observe how these women were literate within the context of the writing classroom. The fourth criterion acknowledged an

institutional manifestation of computer literacy construction. The introduction to computers course is an introduction to DOS as well as a survey of the three most popular applications software: word processing, spreadsheets, and data base creation. Not only is this a tremendous amount of material for a neophyte computer user to absorb in one semester, it also is contrary to research recommendations for optimum learning environments (see, for example, Arch and Cummins, 1989). I believe it was useful to have data both from the perspective of women who have and who have not taken this course, to further expand and help delineate the institutional discourse, enabling me to compare it with the women's perceptions.

Data Collection

Collected data came from 5 sources:

1. Interviews: Initially, I had over 20 women volunteer to be participants. Part of the screening was a result of self-selection. Of these 20, there were 9 who became active participants in a computer help group I set up to run over the noon hour during the last 7 weeks of the fall 1993 semester both as a way to ally the computer phobia of those women who chose to participate, and to help me ascertain who might meet the selection criteria. Eventually, I interviewed 6 of these original 9. During spring semester 1994, I conducted additional interviews with the 3 women who meet all my selection criteria and who became participants in the study. In these interviews, I focused on exploring whether or

not participant expectations were met concerning the written communication class and whether or not these expectations changed by the completion of the course. In addition, I asked them to reflect on the events of the year, our interactions, and projections for the future.

2. Narratives: The place of story in educational research, Carter (1993) says, has become "a central focus for conducting research in the field" (p. 5). Stories are used in teacher education (see, for example Gomez & Abt-Perkins, 1993), in educational research with teachers (see, for example, Grumet, 1991), and in theorizing where, Helle (1991) says, "narrative's power of specifying combines with theory's power of generalizing" to help make possible "more inclusive and multiplistic standpoints for knowing" (p. 63). I had originally intended to collect written narratives as well as oral narratives from participants. A personal narrative is a frequent early assignment in a writing class; however, none of the instructors assigned it and I did not feel I could add to the work load of my already over-burdened participants by asking them to write a narrative for my research. In the course of other assignments, journal entries, and even in research papers, a considerable amount of each woman's life history did surface. So, in this study, there are two components designed to elicit literacy narratives: oral narratives which arise from the interviews and spiraling reflections on these narratives as the interviews and conversations progressed. In addition I use the autobiographical snippets that emerged from other writing assignments.

3. Observations: Participant observation serves to place other data in context (Lather, 1991; Spradley, 1980; Merriam, 1988). My role as participant observer varied depending upon the individual instructor's agenda for the days I observed, as well as on the request of the woman herself. I observed all 3 participants at the beginning, middle, and end of semester. This timetable allowed me a picture of stages of participant interaction with writing and computer technology.

4. Conferences: As part of my bargain with the women who participated in this study, in addition to offering them payment for the interviews, I offered my time and expertise to them for individual help as they worked on papers for their written communication course, as well as with problems or questions they might encounter as they worked with computers. The sessions I had with all 3 participants were invaluable for helping me understand how they perceived their attempts to complete written assignments and their concern about doing well in the written communication course. The individual conferences contributed specific data as well as helping to make me more attentive to the many levels of knowing for myself and the women with whom I worked.

5. Documents: I collected materials seeking to describe the context within which students and teachers interact. I sampled writing assignments coinciding with writing class observations, collected syllabi from all three teachers, as well as department course outlines for all three courses. I gathered institutional information from the North Central Accreditation report, the yearly state-mandated reports on programs and curricula, and

from various school publications. I also used copies of minutes from a variety of computer committee meetings and division and department meetings.

Data Analysis

Analysis of data must arise from one's theoretical framework in a reciprocal relationship with data (Lather, 1991); it is theory "which grows out of context-embedded data, not in a way that automatically rejects a priori theory, but in a way that keeps preconceptions from distorting the logic of evidence" (p. 62). The feminist framework I claim tells me the women in this study, including myself, certainly had some commonalties based on the experience of gender, but I did not assume homogeneity. Women are different across class, ethnicity, sexual orientation, and educational background at the least. I did not assume all the women in this study would be alike, nor that I would be like them. The analysis had to be a way to talk across the differences. In fact, Frye (1992) maintains that the work of feminist theory and research is to seek patterns across differences, and that those differences are "necessary to the perception of patterns" and that it is homogeneity that precludes seeing patterns, so that "one remains unintelligible to oneself" (p.66).

I do not think an interpretive approach necessarily precludes using analytical techniques as well. For example, applying feminist methodological thoughts about collaboration and dialogue with participants to Spradley's (1980) domain analysis or Goetz and LeCompte's (1984) process for the development of conceptual categories can certainly be of value when trying to discover patterns, themes, and similarities or differences among

data generated from multiple sources and methods. As Lather (1994) stressed in a recent American Educational Research Association workshop analysis comes from thinking in layers and all readings of data add layers to the analysis.

In my analysis, then, I used analytic techniques to look for patterns of similarities and differences in experiences with literacy and computers, similarities and differences with expectations about literacy and computers, levels of awareness, fears and hopes, and confusions. I used a qualitative text analysis program called MARTIN on the transcripts of participant interviews and observation field notes. I sorted for categories of issues for instructors and students and for experiences of literacy and computer literacy. I then looked at how those issues and experiences were played out in syllabi, lectures, responses to lectures, and in how participants created their text. As I looked for relationships among the data, I also acknowledged those relationships identified by participants. And finally, I tried to situate and juxtapose the data with institutional events, especially as they related to literacy and computer literacy.

Ultimately, this analysis is about narratives, institutional as well as individual, and the tensions within narrative which I have attempted to address. Narrative is a complex weaving of multiple languages, what Bakhtin (1981) calls heteroglossia, which create layers of meaning. The women who told and lived their stories built these narratives from the languages drawn from the contexts of all their past experience. Heilbrun (1988) says that it is the stories "read, or chanted, or experienced electronically, or [that] come to us, like the murmuring of our mother" that we retell to make new narratives to "live our lives through text" (p.37). Within the narratives told by the women in this study are certainly

the "murmuring of our mother," but also the pronouncements of our father, the authoritative discourse of the dominant culture. It is in the "zone of dialogical contact" (Bakhtin, 1981) where authoritative discourse meets discourses from other, and perhaps othered sites, that this analysis begins, acknowledging the importance of stories for understanding how the discourses of literacy and computer literacy intertwine.

Results

Before I present discussion of major themes, I think it is important to clarify three terms essential to understand the discussion which follows: literacy, computer literacy, and computer-supported classroom.

Literacy is frequently discussed as functional, occupational, critical, or cultural. Functional literacy is defined as the ability to read labels, street signs, and printed materials such as application forms. Some occupations require little more than a functional literacy, but most require some specific literacy skills, such as being able to swiftly read individual menus for a hospital kitchen tray line and then to accurately assemble the individual tray, or to write chart notes for a patient's chart, or to be skillful with standard grammar and usage in order to write business communication, and often to correct a boss' errors. Critical literacy is defined as being able to employ reading and writing analytically. Cultural literacy refers to an awareness of a specific culture's products.

There are analogous computer literacies. If one were functionally computer literate, one would be able to work an automatic teller machine, choose a video, tape a TV

program with a VCR, or create a greeting card at Shopko. An occupationally computer literate person would be proficient in the use of a particular word processing program, or spreadsheet or data base software. A critically computer literate person would utilize computers to analyze data or create written critical exposition. A culturally computer literate person would be able to define megabyte, RAM, LAN, IRC and other terms from the sub-language of computerize.

Computer facilities do not all support the same literacies. Comparing computer labs and computer-supported classrooms should illustrate this point and allow me to define terms. First, a computer-supported classroom is not a lab. A computer lab is a room with computers, networked or stand-alone, that primarily supports functional or occupational literacy and computer literacy; it focuses on skill acquisition. So, A lab allows utilization of the computer as a tool. A computer-supported classroom, on the other hand, is an interactive environment, built on sound pedagogical principles, employing networked computers and software,specifically designed to take advantage of pedagogy applied to a networked environment. Pedagogy in a computer-supported classroom emphasizes literacy and computer literacy as gateway to and maker of knowledge. This is not to say that the machine creates the knowledge, but rather that literate people make knowledge with the technology. Writing teachers in the technical college I studied had access to both a computer-supported classroom and computer labs.

Past Experiences With Literacy

All the participants reported that their parents did some reading and writing. All 3 women said their fathers read at least one newspaper daily. Two of them mentioned mothers reading romance novels; although, all of them said their mothers read more now than when they were children, attributing the change to the fact that their mothers had more time to read. As Valerie said, "At least I don't remember her reading when we were kids, but there were 6 of us, so I am sure she didn't" (Interview 1/25/1994). This is one of the many ways literacy is gendered. None of the women recounted many instances of parents writing. Claudia's mother wrote letters to relatives who had immigrated from Poland to countries other than the USA. Otherwise, no one could remember parents writing. Nor could any participants remember siblings reading or writing outside of school. This is significant, for two reasons: first, because even if there were instances of reading and writing, the fact that none of the participants could remember them indicates the relative importance of those activities in their lives; second, as Brandt (1994) points out in her study of literacy histories among adults in a Wisconsin county, it shows how much more stratified writing is than reading. In other words, all the women remember parent's reading activities, because they were public and to a certain extent, involved the women themselves. Both Claudia and Kate remember their mothers passing on books to them to read. On the other hand, the writing that their parents may have done was so separate from the life of the family that it did not remain in their memories. As Brandt (1994) noted about writing in the households of those she interviewed, writing "is less explicitly taught and publicly valued, largely because writing practices are embedded in mundane work and are more stratified generationally" (p. 476). Unlike with reading, writing for

Brandt's participants was a "lonely" experience. It is this attitude of writing as separate from life and others that seems to get carried into the writing class setting, and the pedagogy either supports it with skill focused, "writer-by-herself-in-a-garret" images, or challenges it with a collaborative pedagogy. Finally, all 3 participants had great difficulty remembering any writing done while in high school. Claudia listed as school writing activities: taking a test, book reports, and learning penmanship. Kate said, "I hated writing in school. We had an icky teacher" (Interview, 1/17/1994). Valerie, after much thought, remembered a paper called the "Junior X" paper, which was a big term paper written during her junior year in high school. Summing up past literacy experiences, Valerie said: "I think in the past I never consciously thought about it [the importance of reading and writing]. Now that you've been asking these questions ... I'm thinking it really wasn't important at all" (Interview, 1/25/1994).

Recent and current literacy practices before participants actually enrolled in the technical college show similar levels of literacy involvement. Claudia, in one of her interviews, reported that she reads at an eighth grade level, but was not aware of this until she took the required entrance assessment. Speaking of her present reading, she said she read "if it sounds interesting to me" (Interview, 11/3/1993). In terms of current writing outside of school assignments, Claudia said: "When I'm not busy, I write. I just write if I have to write... I just don't write much" (Interview, 11/3/1993). Kate rated reading and writing skills highly, saying, "I've always been curious ... my attentions went to reading and I've always liked to read ... (Interview, 1/17/1994). Kate has an extensive background in teaching herself to write various job related reports, grants, and programs, and thought

writing was important. She said, "You gotta know how to write and put your ideas down in words" (Interview, 11/1/1993). Valerie, on the other hand, noted that "reading wasn't the major part of life at age 10" (Interview 1/25/1994). She reads more now, but feels guilty about escaping into books when she should be dealing with the problems of being a single parent. Valerie could think of no writing she does at present, other than lists and reminder notes. She said, "I don't do much writing. I never realized I didn't until you asked me" (Interview, 1/25/1994).

Finally, all 3 women had some experience with computers and other technology; although, they differed on the amount and type of experience what remained constant for all 3 women was their feelings about computer technology, exemplifying Turkle's (1988) notion of reticence in the face of the machine. Claudia felt comfortable using cooking technology like microwave ovens, but had trouble using the on-line card catalogue at the public library and did not feel comfortable using or programming her VCR. Her husband was in charge of that. Kate recounted an experience where she "blew up" a computer on one of her jobs. She uses a word processor, after her boyfriend "gets me onto the word processor at home and pushes all the buttons, and all I have to do is type" (Interview 11/1/1993). Predictably, Kate's boyfriend is in charge of the VCR as well. Valerie worked with some very early computerized equipment on a job she had with a national department store catalogue center, and saw how the computer system at the grocery store she was working at saves considerable labor. So, her feelings toward the technology were quite positive; although, she too accepted the myth of the fearful machine: "I'm not afraid

of them [computers] at all. I know nothing about them. Maybe when I do know something about them I'll learn to be afraid" (12/14/1993).

School Experiences

The experiences that all 3 participants had with literacy their first semester in college, were very similar. Claudia related that she did have reading assignments in the writing course, and that she read those assignments (Interview, 5/25/1994). She reported reading little else. In fact, for her economics course, she completed an extra credit assignment that involved collecting articles that dealt with issues being covered in class; however, she informed me that she only collected the articles, she didn't read them. Claudia said she did no other writing outside the written communication course, except in psychology were she recounted writing "out the questions and we had to answer on the tests" (Interview, 5/25/1994). And, to earn herself a passing grade, she did a very short extra credit paper for psychology (Interview, 5/25/1994). Kate had no other written assignments, and Valerie noted that the only writing she did outside the writing class was "just notes" taken during other classes (Interview. 5/31/1994).

The 3 participants had 3 different instructors for their written communication classes. Two of those classes did not meet during class time in either the computer-supported classroom, nor the open computer lab, even though the facilities were available to them. Claudia took her writing class from an instructor who does not use computers himself except for minimal word processing. This instructor stopped using the computer-

supported classroom that was available to him, because, as he explained, the technicians in the open computer lab were so helpful and the handouts they had put together on WordPerfect were so easy to use, that he thought it was no longer necessary for him to spend time with his students introducing them to computers. Claudia bought an electric typewriter part way through the semester and used it to type the drafts of her papers.

Kate enrolled in a class with an instructor who sees his job as teaching writing not computers. He has never used the computer supported classroom, and scheduled a 1 hour meeting with the open computer lab technician to "explain the basics of formatting a disc [sic], the rules/procedures of the lab, basic word processing skills in Word-Perfect -- enough so that students could create text, save it, edit it. and print it" (Personal Memo).

Valerie was enrolled in a class that met 2 out of the 3 class hours in a computer-supported classroom. The machines in this room are on a network with access to the Daedalus Integrated Writing Environment as well as a number of other invention and revision programs. This third instructor is heavily involved with the use of computers on a personal level. During all 3 observations, this instructor lectured, using the LCD panel on its projector as a podium, and using the whiteboard in the room, but did not use the computers. In fact most students pushed the keyboards out of the way to take notes on paper, and during 1 collaborative activity, the instructor even directed students to use paper and pen, rather than the software available that was designed specifically to support that kind of activity. Valerie never brought her disks to class. He introduced the students to WordPerfect and gave them extra points if they ran their drafts through Grammatik. In other words, he worked with word processing, but did not explore the software available

for turning a room with computers in it into a computer-supported classroom. Valerie become moderately comfortable using the basic features of WordPerfect.

Claudia did use the computers in the open lab to work on writing class papers and her psychology extra credit paper. She reported using the computers "about 4 times" (Interview, 5/25/1994). Kate used computers the most of all 3 participants. In addition to using a computer for her writing class, she was enrolled in a keyboarding course that used an on-line program to teach typing, and the Introduction to Computers course, which crammed an introduction to the basic capabilities of DOS, WordPerfect, Lotus,, and dBase into 1 semester. The class began with 19 students. By the end of the semester, there were 9 left. Valerie said she used the computer quite a bit for her writing class, but added: "I would have liked to used it more ... That was the only class where I actually had to do things on a computer" (Interview, 5/31/1994). She went on to say that she liked working with the computer because it made "fixing mistakes" so much easier and it was "more fun than the old pencil and paper routine" (Interview, 5/25/1994).

The content of all 3 sections of this course were very similar. This is not surprising since there is a departmental syllabus. It is significant, however, that in all 3 classes, discussion of the writing process was relegated to approximately 1 week of a 17 week semester. The emphasis in all 3 classes was on mechanics, awareness of reader as audience, and organizational strategies. The format for these classes was overwhelmingly lecture with some small group activity, and, in 2 of the sections, time allowed for peer critiquing of papers.

Participant reactions to their first semester of college in general and the writing class in particular were quite revealing. Claudia said that she thought that what the instructor most valued and graded on was whether she did all her assignments. She commented on the class: "I liked it and I always paid attention to him. I always listened. I always tried my best in that class" (Interview, 5/25/1994). When asked if she thought there was more for her to learn about writing or about computers, Claudia answered: "No I learned a lot in writing and the computers. I'll stay with what I know" (Interview, 5/25/1994).

Kate explained that, " You know honestly I don't know" (Interview, 6/2/1994) when asked to describe what her instructor valued in the writing class. Then she added that based on the critique sheets he used to attach to her papers when they were returned, she would guess he valued "... not to get too flowery ... he was real adamant about that ... , punctuation, sentence structure, language, how you lay out your language and sentence structure, typing things, and class attendance" (Interview 6/2/1994). Kate enjoyed her writing class, because she enjoys writing. She did, however find one element to be frustrating: "I liked putting my thoughts down on paper. I sometimes didn't like the way he wanted me to do them but I liked doing it and I sometimes didn't understand the way he wanted me to do it ... He did a very good job of explaining the why and the what for and his expectations, but I'm not real good at putting his why and what for into my words. (Interview, 6/2/1994). Kate was not, however, satisfied with the outcome of her writing course: " I almost would like to take Written Communications over again, because I did OK. A "B" is an okay grade, but I really didn't comprehend a lot of it" (Interview, 6/2/1994).

Valerie's experiences were similar to Kate's. In terms of deciding what her instructor valued, she listed items that Grammatik would flag, stressing "passive phrase[s]," reading level of the paper, and the number of sentences in a paragraph (Interview, 5/ 31/ 1994). She too was ambivalent about the class as the following interview excerpt shows:

> Valerie: I enjoyed it a lot. I liked it, but like I said it was probably the hardest class I had, simply because I wanted it written down in front of me like you have a test in business law on Chapter da ... da... da. You study that, you go home and do that, or ... with him it was like kind of just floating around. Oh what should I write about? That was hard.
>
> Interviewer: You always came up with topics?
>
> Valerie: Yeah but I never was .... I would rather have him put topics in a hat and everybody draw one or something.
>
> Interviewer: What if you got one you didn't like or weren't interested in.
>
> Valerie: I don't care. I don't care. I would have ... You tell me what to do and I'll do it. If I like it or not I'll do it. But I didn't like the floating around feeling I got from him" (Interview, 5/31/1994).

Valerie also expressed the need for more literacy experiences. First, she commented that: "In my life I don't write. And I still don't. I mean I have gone through a semester of school and how much writing have I done? (Interview, 5/31/1994). She was surprised to discover that the writing course she had completed was the only class she

would take and expressed a need for more experience: " I think definitely there should be more, because this was just like a scratch in the surface. Really basic ... it would really help me I think to have a little more in-depth" (Interview, 5/31/1994).

Implications of the Study

This study portrays typical literacy experiences among reentry, female technical college students. In addition, however, these women's voices dare us to examine new literacies, to think about the implications of their experiences for other contexts. Based on the experiences of the 3 participants in my study, is seems clear there is a relationship between the accepted institutional literacy discourse and computer literacy. Those literacies stressed by the college were also manifested in the types of computer literacy emphasized. The ways these literacies are constructed in the technical college system I studied limit rather than expand students' opportunities for knowledge acquisition.

Valley Technical College provides successful learning experiences for multitudes of students who may not ever have experienced academic success. It serves both the needs of the students and local business and industry by providing trained workers. It is blessed with a cadre of competent, caring faculty who work hard to provide their students with a literacy instruction. That faculty, however, are also the products of and participants in the institutional discourse which promotes a computer literacy and literacy stranded at the skill level. With all the good intentions in the world, the technical college system, VTC, and the curriculum only open doors into dead-end rooms. It is true the door leads to opportunities perhaps not available to students previously, but it also true that any students who want to

move on to the next level must go back through that doorway, back into a corridor that leads them right back to where they began.

Briefly, I propose the following as answers to my research questions:

1. Our individual literacies are our frame of reference; they create our views of reality. No one accepts another literacy unless it is, to use Bakhtin's (1991) phrase, internally persuasive. The women with whom I worked were ambiguous about the literacies encountered during this year at college. All 3 women perceived themselves as literate and assumed they would simply have to prove this in their writing class; at the same time all 3 expressed fear of the writing class in particular. Claudia told me, "I can write. I had spelling in high school." In the next breath, she went on to characterizes herself as a "not very good" writer and reader. Further, they assumed they would be receiving only a refresher course on skills they already possessed. So, for example, Claudia assumed her classes at the technical college would simply be a "brush-up," and Kate said the degree from VTC would simply provide, "a paper trail," a piece of paper that would document what she feels she already knows.

In other words, all 3 women saw school literacies as very separate from the rest of their lives. Prior to their experiences in the writing class and the other classes in which they enrolled that semester, they had expected to be taught the same things they had remembered form high school. During the classes, all 3 expressed frustration with applying specific skills required by their instructors to specific assignments, and made no connection between these and other writing in their life. After the writing course, all 3 expressed surprise at how well they had done, but 2 said they needed more instruction than

the course had offered. So, those elements encountered that were not in agreement with their individual perceptions of literacy, that were not internally persuasive, caused some dissonance, but were resolved by separating reading and writing necessary for school from that which was necessary in what they perceived as the real world. Indeed, both computer literacy and literacy instruction ***are*** separated from the context of the whole of the student's lives; in the experiences of the participants in this study, they happen only within the context of writing classrooms, or computer instruction classrooms.

2. Similarly, parallel themes emerged concerning these women's experiences with computer literacy. They perceived a necessity to be computer literate, but had no clear definition of what constituted computer literacy. They experienced computer technology exclusively as a tool, primarily as an electronic typewriter. They actually had quite a bit of experience and exposure to computer technology, but perceived themselves as less skilled than they actually were, allowing the men in their lives to handle the technology. From their answers concerning the necessity of and definitions of computer literacy, it seems clear that all three women understand computer literate to mean either literate on a functional level, using, for example, an on-line card catalogue, or on an occupational level, being able, for example, to run computerized check-out and inventory systems in a retail store.

Zuboff (1988) shows us what happens in business and industry, after computer technology is introduced, when literacy is tied too closely to the lowest levels of literacy. The result, Zuboff says is that work and workers became deskilled, that they move from interacting with each other and the materials of their job, to simply acting on the materials,

a process she labels: automating.. On the other hand, managers continue to act with others and the new information tools which are introduced, and in some cases the extent of manager involvement even increases. This process Zuboff calls: infomating.

Applying Zuboff's argument to the site of a writing class lets us see the root of the problem. The introduction of computer technology to a writing class has often been, to use Zuboff's word, automating the production of writing rather than infomating it. In other words, the computer is seen as a means to produce a nicer product and becomes an electronic typewriter. One reason for this as LeBlanc (1994) points out is that teachers are given the technology and no support for integrating the technology into their pedagogy. In a Wisconsin technical college setting, instructors teach 6 courses per semester. This heavy load means that there is little time to explore the technologies' possibilities even when those technologies are available. Even so, if we are to infomate rather than automate literacy education, we must do as Hawisher (1994) exhorts us. We must "extend our thinking to reveal ways of learning not yet anticipated -- to employ the emerging media not to replicate the past but to create more equitable learning environments for students and teachers" (p. 54).

Much of the research on computers and writing has focused on individuals and the text they create rather than on broader social contexts. As computer technology slides more securely into the background, into the taken-for-granted in education, it is even more important to scrutinize these social contexts. At issue is the future. Computer-mediated communication will be ***the*** means of communication. Information will be stored in hypertext data bases and writing will become e-text. In terms of examining women's

relationship with this technology we must also move beyond binary opposition stances posing questions of "are women or men better with computers?" Or, "are more women than men afraid of computers?" More meaningful questions are concerned with whether women's education will lead them to be skilled in the new forms of thinking and communicating, and whether they will be involved in shaping the way computer-mediated communication develops.

Lugones (1987), writing in support of a pluralistic feminism, suggests that those outside the mainstream of the dominant culture often have "acquired flexibility in shifting from the mainstream construction of life to other constructions of life" (p. 390); that outsiders or othered individuals learn to travel across worlds, sometimes against their will, and as a survival mechanism. Nevertheless, Lugones advocates world traveling as a means of recognizing and affirming our "plurality of selves" (p. 398). In other words, Lugones proposes that we all be "world travelers," visiting each other's worlds so we might begin to value our differences, and perhaps, learn to be comfortable in other worlds.

I suggest we also need to be world travelers across the various literacies, that for the sake of all the Claudias, Valeries, and Kates, we must create a fifth literacy, what I call a connected literacy. Rather than thinking of literacy as discrete steps in a hierarchy of skills, rather than defining literacy as only a dominant culture construction, rather than separating literacy and computer literacy, we must seek mechanisms for linking all literacies, encouraging fluent world traveling and comfort within the emerging hybrid of literacy within computer-mediated environments.

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